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ABSTRACT

Despite severe budget limitations, the Bellflower Unified School District in southern California has instituted an outstanding computer education program. This transcript of a panel presentation by school board and staff representatives of the Bellflower Unified School District, describes the district's computer program, its history, its impact on the educational program as a whole, and its future prospects. The district has purchased 356 microcomputers, distributed at a ratio of 1 computer per 25 students. These are employed in computer labs, rotated among classrooms, and assigned to individual teachers for 1 year at a time, based on competitive proposals. The program provides all students, K-12, with opportunities to use computers as an instructional tool, become computer literate, develop problem-solving skills, and engage in higher level thinking processes. The computer curriculum includes the following programs: computer-assisted instruction in reading, math, language, science, and social studies; computer literacy for students, parents, and community; and keyboarding skills and programming classes for all ages. The program is administered by four committees, formed by the instructional services division to perform the following functions: (1) curriculum design for computers, (2) software evaluation and selection, (3) school site support, and (4) staff development. Subsequent evaluation has revealed an overall 15 percent gain in student achievement scores since the program was implemented. (TE)

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1984 NSBA Convention-Houston, March 31 - April 3
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Califania

E-81 How We Use Computers for (Much) Better Education
Monday, April 2, 4 p.m.
Board Members Presenting: Justine Miller, Peggy Turner, Larry Ward
District Personnel Presenting: Rick Kemppainen (author)

BELLFLOWER UNIFIED SCHOOL DISTRICT
16703 SOUTH CLARK AVENUE
BELLFLOWER, CALIFORNIA 90706

How We Use Computers for a (Much) Better Education

I. Bellflower overview

- A. Size
- B. Location
- C. General description

II. General structure of computer program

- A. Quantity
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V. Impact computers have had on educational program

A. Achievement scores
B. Motivation indicators
C. Expectancies
D. Reputation

VI. Where Bellflower goes from here - Phase II

The Bellflower Unified School District is located in Southern California near the major city of Long Beach. Some 8,500 K-12 students who reside in the communities of Bellflower, Lakewood, and Cerritos receive their education from a total of 350 teachers and 356 microcomputers. Nine schools - - six elementary, two 7-12, and one continuation high school are located in the eight square miles the district covers. A major reorganization of the school district took place four years ago. At that time, one half of the original elementary schools and both junior high schools were closed as a result of declining enrollment. This is offered as pertinent information because the money from the sale of two of the surplus schools was invested in what we believe is an outstanding, a model, computer education program.

Bellflower Unified is governed by a five-member Board of Trustees that monitored a $30,000,000 budget this year. Even though the funding structure of California's schools changed, the priority our Board places on computer education has remained clear.

In California, most of the funding for public schools comes from the State. Let me take a moment to refresh your memory on two actions which have had a major impact on public education in California during the last seven years.

In 1978 California voters passed Proposition 13, a constitutional amendment which changed education's funding base from the County property tax rolls to the State income tax rolls. Enactment of Prop. 13 greatly reduced the amount of funding to be split among school districts.

At the same time, California is moving toward an equalization of the amount of money which is being spent for the education of each student. Equalization was mandated by the State Supreme Court in the Serrano v. Priest ruling.

While the Serrano decision is raising our district's status from a low wealth district -- we spend $2,021 annually per student -- the condition of the economy is pulling the rug out from under Boards of Education. A year without cost-of-living increases,

coupled with inflation and collective bargaining problems, forced us to make severe budget cuts last year.

I feel compelled to point out that 85% of the $21 million dollars Bellflower spends is locked into salaries. That leaves a scarce amount for programs, supplies, books , utilities and support services.

Given all of these factors, the Bellflower Board of Education still allocated precious General Fund monies for personnel for our Computer Education Program and the purchase of appropriate software to challenge our students. This was necessary because Bellflower is a community with high expectancies for students. The community recognizes the world is undergoing an informational revolution impelled by computer technology, and wants to assure that our students are prepared to live in this high tech society.

Today, our team will attempt to explain the general structure of our computer program, identify the educational status of the school district when we embarked on our computer program in 1980, give our history of building a computer program, relate the impact computers have had on our educational program, and share our plans and goals for the future.

Before I turn the reins over to Rick Kemppainen, Program Specialist in Computer Education, I want to clarify one thing. We realize that many variables have affected our educational program during the last four years, and we don't wish to give the impression that computers are the only reason we are closer to our goals. The board members here in Houston today all feel strongly that our Computer Education Curriculum is structured to prepare our students for the demands and requirements of the high technology society in which they will live and work.

In the Bellflower Unified School District, utilization of microcomputer technology is an integral ingredient of excellence in education.

This year 356 microcomputers are in use throughout the District at locations ranging from elementary, secondary, and adult school sites to administrative offices. The District has an average of 25 computers at each elementary school, 60 computers at each high school, 20 at the continuation high school, 28 at the adult school, and 15 at the district's central offices.

The computers are distributed throughout the district at a ratio of approximately one computer per 25 students in both elementary and secondary schools. Computer configurations at all elementary schools include: computer lab consisting of 18 64K Apple II's, a 10 MB Corvus hard disk networked with an Omninet disk server, and 4 dot matrix printers with graphic chips and 2K buffers; 4 computers with dual disk drives rotated among classrooms on a weekly/bi-monthly basis; and computers granted to individual teachers, for a period of one year, based on competitive proposals. Secondary configuration includes: 3 computer labs

consisting of a minimum of 15 64K Apple II's, 4 dot matrix printers with graphic chips and 2K buffers; 5 computers rotated among classrooms for a predetermined period of time; and computers granted to individual teachers, for a period of one year, based on competitive proposals. Both the continuation high school and adult school have computer labs as well as free standing units.

Computers are used throughout the district as administrative tools, assisting in record keeping (attendance, student tracking, grading, data bases, budgets, and inventory), and correspondence (word processing). With the aid of computers, counselors are now able to track individual student's attendance habits. The accurate up-to-date information obtained plays a key role in curbing attendance problems. Psychologists are able to use computers in conjunction with standard testing instruments to obtain highly accurate individualized analytical data on students. Such data can then be plugged into Individualized Educational Programs for students.

The K-12 computer program within the District provides all students, kindergarten through the twelfth grade, opportunities to utilize computers as an instructional tool, become literate in computers, develop problem solving skills, engage in higher level thinking processes, and assist in all areas of the established curriculum.

In kindergarten through eighth grade, students participate in understanding the role computers play in our society. Students also learn of the importance of computer ethics, and they engage in higher level thinking processes as they resolve problems based on the computer language Logo.

The instructional component of the computer program is staffed with two district level individuals who maintain systems, plan, develop, and implement staff training programs, write curriculum, lesson plans, student activities, and integrate computer education into all phases of instruction.

Four active computer committees have enabled the Instructional Services Division to maintain a high level of service to all sites. The committees have been formed to perform the following functions:

1. Curriculum Design and Development for Computers: Develops and revises computer K-12 scope and sequence, computer course outlines, classroom computer activities, and links classroom activities to computer instruction.

2. Software Evaluation/Selection: Utilizing a district-approved form, committee members evaluate new software, and make recommendations for future purchases.

3. School Site Support: Committee members debug, maintain, and update network systems regularly. Members also manage the organization of the software at the site level.

4. Staff Development: Committee members assist in all phases of staff development for teachers and administrators within the district.

Each site also has a computer utilization committee which evaluates and makes recommendations to the district computer facilitator concerning their computer program.

Prior to the extensive implementation of computers within Bellflower Unified School District elementary test scores indicated students were achieving 1 to 4 percent below state averages in reading, math, and language skills. Secondary test scores revealed students performed 1 to 3 percent below state averages in math, reading, and language skills.

The lack of a significant increase in student performances over a period of time resulted in Board of Education action to engage in an Educational Performance Audit. Their recommendation to make better utilization of test and assessment data to improve educational programs, included the following:

1. further analyze and codify existing data

2. relate data to programs or classroom objectives

3. create an effective learning environment that impacts student achievement

4. help students perform better on tests and reduce their anxiety about tests

5. make adjustments in a program based upon such feedback by using trend analysis and examining patterns of pupil performance

The audit further indicated that the Board of Education was not engaged directly in improving student performance; that actions made were more symbolic than pragmatic, and did not reflect direction for the educational programs which could be considered comprehensive, detailed, or specific.

The community perceived the district as declining in enrollment, budget, and at best, stagnating student academic performances.

A "Master Plan for the Utilization of Computer Technology" was developed in draft form in June, 1982, revised in August, 1983, and approved by the Board of Education in September, 1983. It contains four major goals to guide the use of technology in the district. These broad goals are:

1. improve student achievement of educational goals

2. increase teaching efficiency

3. manage the instructional and learning processes

4. manage functions and activities that support educational programs

These goals are the basis for planning, recommending, implementing and appraising the plan.

Staff development, mandated by the Board of Education, is an integral component of the computer program. All elementary teachers have received training in computer literacy, computer assisted instruction software, management systems, teacher utilities, and Logo. Secondary math, science, and business teachers have received training in computer literacy, specialized software, and teacher utility software. Computer education for teachers and administrators within the district is an ongoing function dictated by assessed needs.

Prior to the adoption of the "Master Plan", 90 computers were purchased to be utilized throughout the district. Two labs were established at each high school, and four computers were distributed to each elementary school. Site administrators were required to attend training sessions prior to receiving their computers. Teachers throughout the district were given an opportunity to receive training, and upon completion, they received a computer for classroom use.

The second major purchase (150 Apple II's, 30 printers, language and CPM cards) provided a lab configuration at each elementary site, an additional lab at each secondary site, plus computers for administrative purposes.

Currently the district is utilizing computers in all academic subject areas. In one of our elementary schools, computers were utilized with K-6 students in a laboratory setting, and standardized tests scores increased dramatically. On the average, Chapter I students increased their performance on the Reading Subtest of the CTBS by 24%. All other students increased their performance level on the CTBS by, 15%. Comparisons of these rankings were made by analyzing Fall 1982 and Spring 1983 CTBS scores.

The computer curriculum in the BUSD has included the following instructional programs: Computer Assisted Instruction in reading, math, language, science, and social studies; computer literacy programs are being conducted for students, parents and community; and keyboarding skills and programming classes offered to students in Grades K-12.

Schools in the district offer classes in CAI, programming, literacy, and keyboarding skills before and after school, during the summer, and on Saturdays. In one elementary school, over 250 students volunteered to participate in a before/after school CAI program. In another school, more than 100 student names were placed on a waiting list for participation in computer assisted instruction Saturday class.

On Public School Nights, computer laboratories are the most popular attraction. As a result of parent enthusiasm, computer community adult computer classes were established to meet increased needs and interest.

At the secondary level, courses are offered in computer literacy, programming, advanced programming, word processing, and data entry. Several computer clubs have been organized and are actively involved in writing programs for specific purposes within the district, and they maintain public domain software (Bellflower High School Computer Club claims to have the most extensive collection of public domain software in the nation!). Several students have written programs that have been purchased by private industry, and other students have entered directly into the computer work force from high school.

The District also retrained some 25 workers, laid off by General Motors, for new careers as computer repair technicians. The pilot program involved five months of extensive training given five days each week.

Computer literacy, programming, and word processing are also offered through the Adult Education Center. Concurrent students and community members participate in the classes.

In March 1983, the Los Angeles County Superintendent of Schools office conducted a study of BUSD's implementation and utilization of computer technology.

In its report, the study team pointed out that "the microcomputer program in Bellflower is one of the pioneering projects."

"It is the program most frequently referred as an exemplary program to other districts by county microcomputer services staff."

"The quality of its master plan, its secondary program, the extent and quality of its staff development program, software selection process and the laboratory configurations are often cited."

These are the highlights of Bellflower's progress in providing excellence in education through the utilization of microcomputer technology.

BUSD staff and students will continue to grow and develop expertise in this exciting field. The possibilities created by ever-evolving technology today seem virtually unlimited and Bellflower has eagerly accepted the challenge of preparing its students to become a part of the information age.

Where do we go from here?

Bellflower is now in year three of a five year Master Plan for Computer Education. Phase II is scheduled for the fall of 1984. Generally, it includes the installation of a comprehensive, efficient cost effective mini computer to monitor progress and deliver information rapidly to decision makers. We are in the market for a system that interfaces with our Apples to complete the circle and assist our teaching staff, administrators and classified employees. This component will enable the District to perform all contractual data processing functions except budgeting.

In addition, more microcomputers for classroom management and instruction will continue to be purchased for individual classrooms based on competitive proposals written by teachers.

FURTHER INFORMATION

If you are interested in learning more about the Bellflower Unified School District computer program, please contact: Justine Miller, President, Board of Education, 16703 S. Clark Avenue, Bellflower, California 90706.